



IOWA DEPARTMENT OF NATURAL RESOURCES

LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

EPA's Clean Power Plan Proposal

April 2015

U.S. EPA's Carbon Standards for Existing Power Plants

- Federal requirement for State Clean Power Plans
- Who is directly affected in Iowa?
- What will Iowa's plan look like?

Carbon Standards for Existing Power Plants

Clean Air Act section 111(d)

Why are these standards being developed?

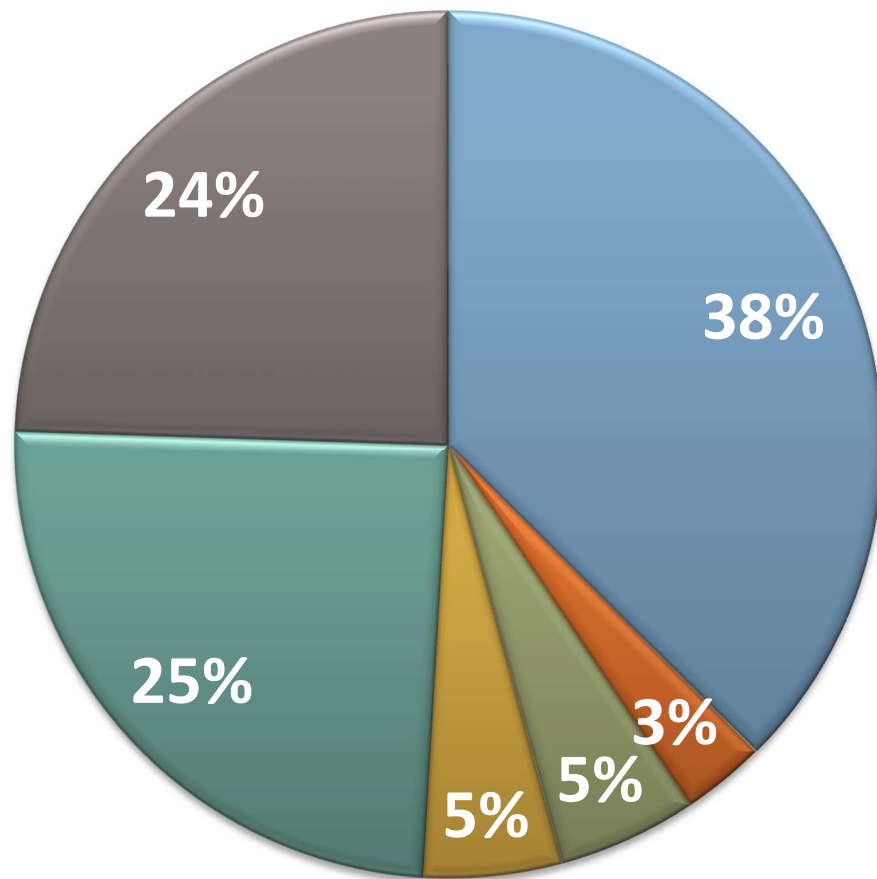
- Power plants are the largest source of carbon emissions in the United States: about one-third of all greenhouse gas pollution in the U.S. is from the generation of electricity by power plants. These standards are part of President Obama's Climate Action Plan to reduce man-made greenhouse gas emissions.
- Existing sources of air pollution can be regulated under the Clean Air Act Section 111(d).

Past 111(d) Rules

- **Municipal Solid Waste Landfills.**
- **Municipal Waste Combustors.**
- **Sulfuric Acid Plants.**
- **Primary Aluminum Reduction Plants.**
- **Phosphate Fertilizer Manufacturing Plants.**

Iowa CO2 Emissions by Category (2013)

96,698,990 tons



- Power Plants
- Industrial Processes
- Residential Fuel Use
- Commercial Fuel Use
- Industrial Fuel Use
- Transportation
- Waste <1%

Federal Rulemaking & State Plan Schedules

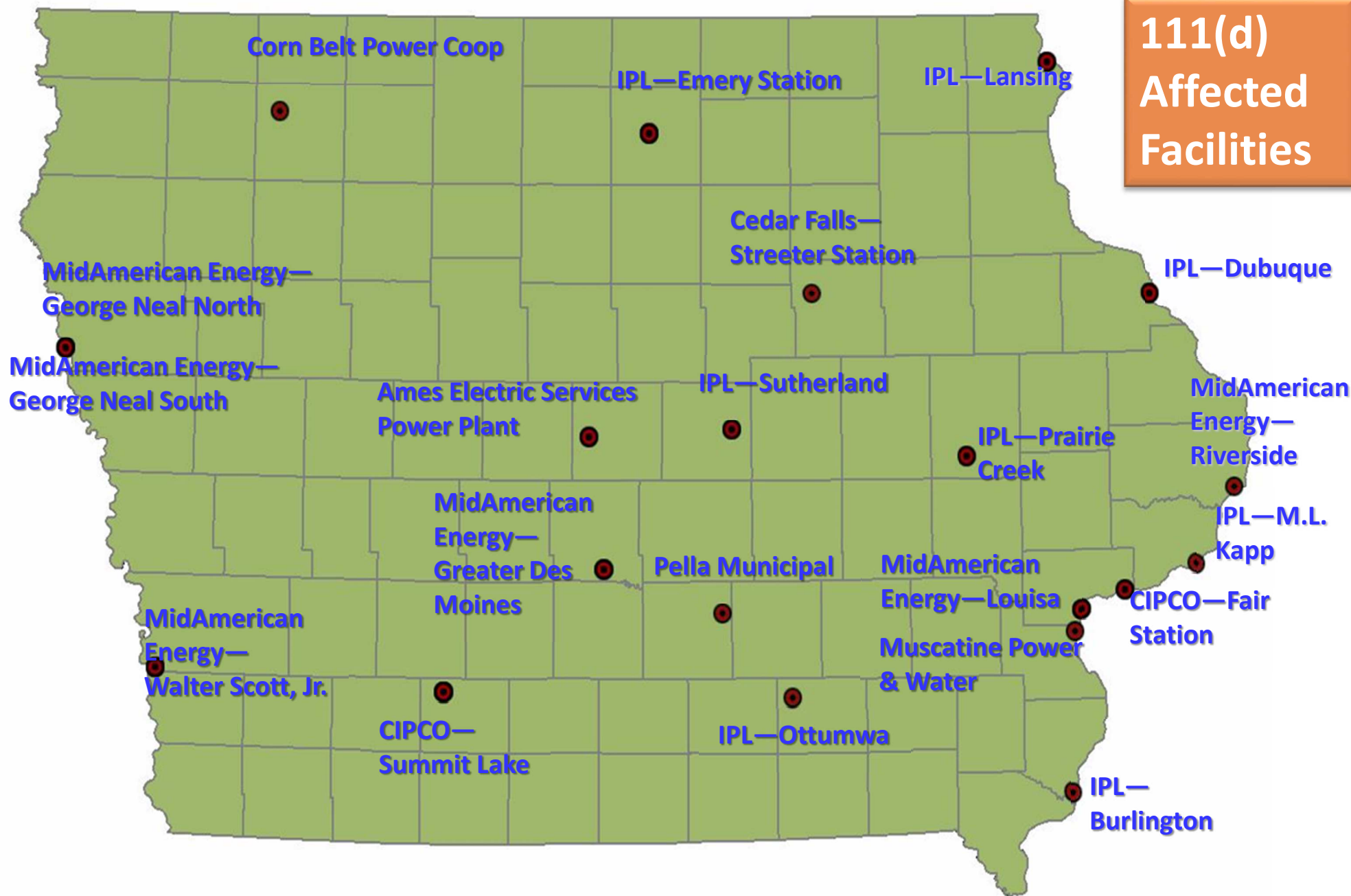
EPA has proposed the following schedule:

- **June 2014:** EPA proposed standards, regulations or guidelines for existing power plants.
- **November 2014:** Comments on proposal submitted by DNR, IEDA, and IUB.
- **Mid-summer 2015:** EPA issues final standards, regulations or guidelines for existing power plants.
- **June 30, 2016:** States submit compliance plans. These can be complete plans or initial plans with requests for 1-year (single-state plan) or 2-year (multi-state plan) extensions.
- **June 30, 2017:** Compliance plans with 1-year extensions are due.
- **June 20, 2018:** Compliance plans with 2-year extensions are due.
- **2020:** Beginning of Clean Power Plan Implementation.
- **2030:** Final compliance date.

Iowa Process So Far

- Since the EPA began its extensive stakeholder outreach in the fall of 2013, Iowa stakeholders have met four times collectively, with approximately 35 different organizations participating.
- **Listening & Learning.**
- Joint comments by Iowa DNR, Iowa Economic Development Authority, and Iowa Utilities Board were submitted on November 14, 2014, focusing on:
 - Reducing carbon dioxide (CO₂) emissions while maintaining a reliable, affordable electric system that can be sustained over the long term.
 - Maintaining flexibility for states.
 - Receiving credit for early action in renewables.
 - Technical and implementation issues.

111(d) Affected Facilities



State Goals

- EPA proposed an interim goal (2020-2029) and final goal (2030) for each state. Proposed goals are unique to each state because they reflect the diversity of how states produce and consume electricity.

State	2012 (lbs./MWh*)	2020-2029 Interim (lbs./MWh*)	2030 Final (lbs./MWh*)	% Reduction from 2012
Iowa	1,552	1,341	1,301	16%
Illinois	1,894	1,366	1,271	33%
Minnesota	1,470	911	873	41%
Missouri	1,963	1,621	1,544	21%
Nebraska	2,009	1,596	1,479	26%
South Dakota	1,135	800	741	35%

- States have the option to convert their rate-based goal (lbs./MWh) to an equivalent mass-based goal (metric tons of CO₂).

2012 CO2 Emissions (Metric Tons)	Interim 2020-2029 Mass Equivalent (Metric Tons)	Final 2030 Mass Equivalent (Metric Tons)
34,673,773	26,553,594	25,748,593

State Goal Setting

- The goals are in the form of an adjusted emission rate (pounds of CO₂ emitted per megawatt-hour of *net* electricity generated).
- The goals are calculated starting with 2012 emissions and generation.

$$\text{Adjusted Emissions Rate} = \frac{\text{lbs. CO}_2}{\text{MWh-net}} = \frac{\text{Emissions from fossil fuel-fired affected units}}{\text{Generation from Fossil Fuels} + \text{Nuclear Capacity} + \text{Renewable Generation} + \text{Energy Efficiency Adjustment}}$$

- EPA then applies four Best System of Emission Reduction (BSER) “building blocks”:

BSER Block 1	BSER Block 2	BSER Block 3	BSER Block 4
Improve coal steam unit heat rates by 6%	Dispatch natural gas combined cycle units to 70% capacity factor	Increase renewables and nuclear generation	Increase demand-side energy efficiency to 1.5% annually

- EPA determines the BSER based on costs, size of reductions, technology, and feasibility. [42 U.S. Code §7411(a)(1)]

Flexibility

- The goal is a state-wide average, not a limit on individual units or facilities.
- State goals do not define or limit states' compliance choices.
- **Each state has substantial flexibility to determine how to meet its goal.**
 - A state can employ all, some, or none of the building blocks EPA used to calculate the goal in its state plan as long as the state can demonstrate how the plan's actions will get them to its goal and achieve real reductions in carbon pollution from power plants.



States Choose How to Meet the Goals

Some options are:

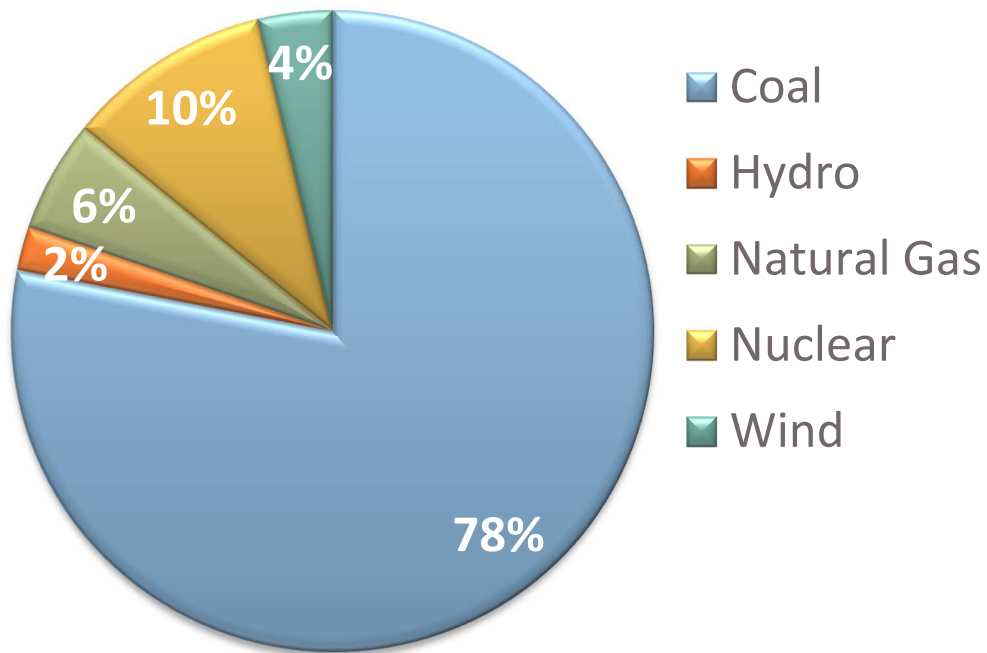
- Demand-side energy efficiency programs*
- Generating electricity from low/zero-emitting facilities*
- Expanding use of existing NGCC units*
- Transmission efficiency improvements
- Energy storage technology
- Retiring high-emitting units
- Energy conservation programs
- Retrofitting units with partial carbon capture and sequestration
- Use of some types of biomass
- Efficiency improvements at higher-emitting plants*
- Market-based trading programs
- Building new renewables
- Dispatch changes
- Co-firing or switching to natural gas
- Building new natural gas combined cycle units

* Measures EPA used in calculating the state goals

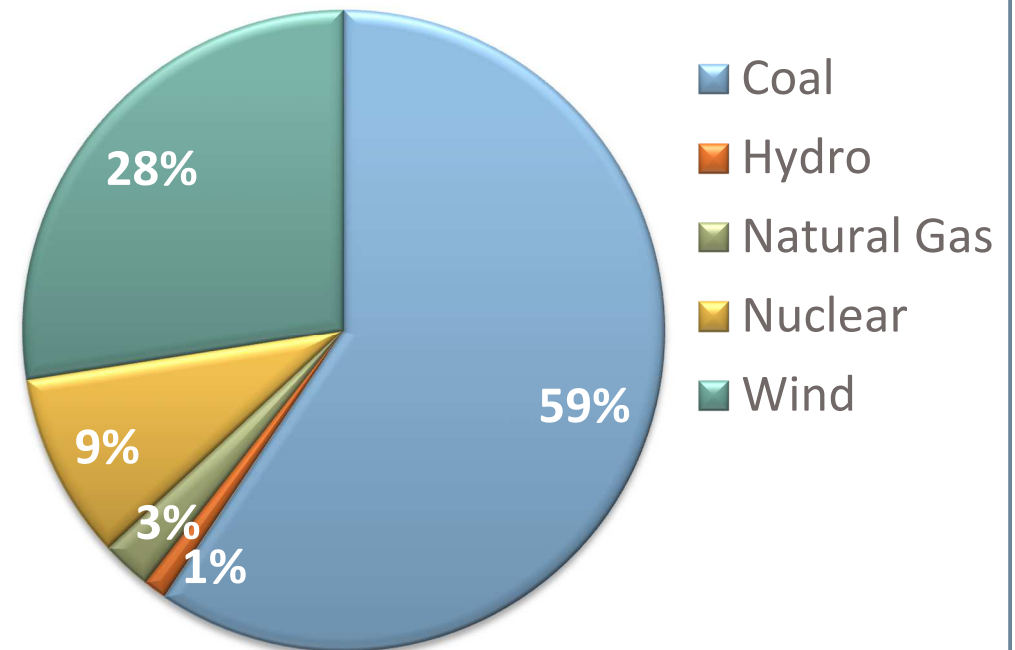
Progress in Renewable Energy

Iowa's Electricity Generation Profile

2005



2013



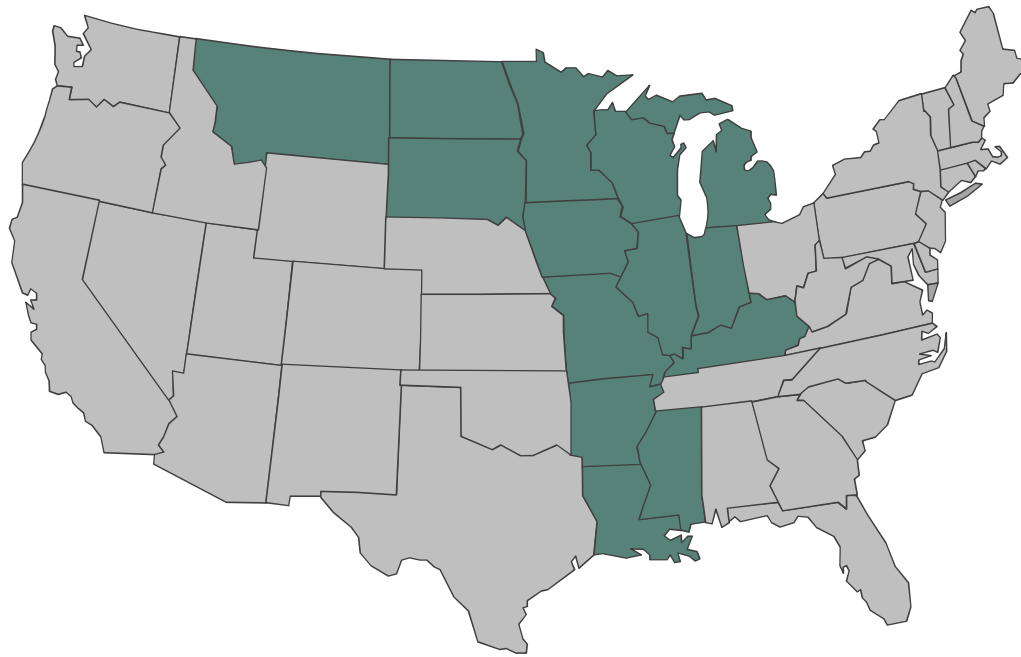
Source: Energy Information Administration – www.eia.gov/electricity/data/state

What Goes into a State Plan?

The proposal includes a list of 12 components that must be included in a state plan:

1. Identification of affected entities (affected EGUs and other responsible parties)
2. Description of plan approach and geographic scope
3. Identification of state emission performance level
4. Demonstration that plan is projected to achieve emission performance level
5. Identification of milestones
6. Identification of corrective measures
7. Identification of emission standards and any other measures
8. Demonstration that each emission standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable
9. Identification of monitoring, reporting, and recordkeeping requirements
10. Description of state reporting
11. Certification of hearing on state plan
12. Supporting material

Midcontinent States Environmental & Energy Regulators (MSEER)



A “no-regrets” effort by state environmental and utility regulators to explore and assess options to implement federal CO₂ emissions reduction requirements for existing power plants.

Particularly, whether multi-state coordination would reduce costs and bring other benefits to their states compared to a single-state approach.

Litigation

State of Nebraska v. US EPA

Lawsuit filed to block EPA's proposed regulations for **new** power plants under section 111(b).

- Argued that Energy Policy Act of 2005 forbids linking new source performance standards to pollution technologies developed with federal assistance.
- Case dismissed on October 6, 2014 because 111(b) is not a final agency action.

Reference: US District Court for Nebraska 4:41-CV-03006

Litigation

Murray Energy v. US EPA

Murray Energy and 14 states have filed suit in the U.S. Court of Appeals for the D.C. Circuit asking the Court to stop EPA's proposal to regulate existing power plants under section 111(d).

- Argues that existing power plants cannot be regulated under 111(d) because they are already regulated for hazardous air pollutants under section 112.
- D.C. Circuit will hear oral arguments this Thursday (04/16/15).

Reference: US Court of Appeals DC Circuit - Consolidated cases 14-112 and 14-1151

Recap

- Iowa is in good position to utilize early investments in renewable energy and energy efficiency.
- Stakeholder outreach will continue to be an integral part of the planning process.
- EPA plans to finalize rule by mid-Summer 2015.

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DNR Website:

<http://www.iowadnr.gov/InsideDNR/RegulatoryAir/GreenhouseGasEmissions/CarbonPollutionStandards.aspx>

EPA's Clean Power Plan Website:

<http://www2.epa.gov/carbon-pollution-standards>

EPA Tool Box:

<http://www2.epa.gov/cleanpowerplanttoolbox>